

## **A Survey of Cattle, Sheep and Goat Ticks Infestation in Katagum Local Government Area of Bauchi State, Nigeria.**

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### **Abstract**

A survey was conducted to identify tick species of cattle, sheep and goat in katagum local government area of Bauchi state .Collection and identification of the ticks were undertaken from 250 cattle,180 sheep and 120 goats. Result showed that about 4 genera of ticks comprising of 8 species affected cattle and the most prevalent species is the *Amblyomma variegatum* (38%). Three genera of ticks had affected sheep which comprise of 5 species and the most is *Boophilus* species (50%). Ticks that affected goat are made up three genera which comprise of 4 species and the most prevalent is *Rhicephalus sanguinensis* (70%). Attention should be given to prevention and control of ticks, since they cause serious production and economic losses.

**keywords:** Ticks, Survey, Infestation, Ruminants

### **Introduction**

The arthropods contain over 80% of all known animal species and occupy almost every known habitat, as well as a plethora of small and little-known groups. As a result of their activity, arthropod ectoparasites may have a variety of direct and indirect effects on their hosts (Wall and Shearer, 2001). Ectoparasites, particularly ticks, are important parasites because of their voracious blood-feeding activity and as vectors for various agents of diseases in both man and livestock (Cumming, 1998). In Nigeria parasites constitute a major constrain to livestock production in Nigeria (Fabiyyi, 2007).This is particularly of cattle, sheep and goat. Ticks are ectoparasites of ruminants and other domestics and wild animals living by haematophagy on blood causing skin irritation and anemia (Wilson, 1990). Ticks are among the most difficult ectoparasites of domestic animals to control (Walker *et al.*,2007).Ticks are also one of the major vectors of pathogens, such as Babesiosis, theileria, anaplasmosis Dermatophilosis etc. to animals in the world (Soulsby, 1982; Morel, 1989). Severe irritations caused by their bites especially when numerous can result to severe emaciation as animals do not settle down to eat properly and rest. The large volume of blood they suck when they occur in large number can lead to anemia which in turn results in weakened stock. Their bites cause serious damage to hides and skin which are valuable export products in Nigeria (Fabiyyi, 2007).The productivity of ruminant animals depends on the health status of the animals (Lamorde ,1981). Good herd health can only be achieved by adequate control of vectors of the diseases and this is one of the costly operations in the livestock industry. Effective control of vectors could be possible if farmers have the idea of infestation (Hassan, 1997). It is important to know the prevalence of the ticks species involved in the transmission as well as their geographical distribution for the control of ticks borne diseases (Gholan, *et al.*, 2007). Information about the tick infesting of ruminant animals attributed to its dynamics is critical for planning, implementation and evaluation of an effective tick and tick borne

disease control strategy. It is in this light that this study reported here in attempted to find out ticks infestation of cattle, sheep and goat in katagum local government of Bauchi state.

### **Materials and Methods**

Katagum local government is situated on the northern part of Bauchi state, Nigeria. It is located between latitudes  $11^{\circ} 42'$  and  $11^{\circ} 40'$  and longitude  $10^{\circ} 31'$  and  $10^{\circ} 11'$  east (Anonymous, 2009). It shares common boundary with Itas/Gadau local government in north west, Jama'are to the west, Dambam to the east, Misau to the south west, Giade to the south and Shira to the southwest (Azare, 2013). It has a landmass of 1,120 square kilometers National Population Commission (NPC, 2009). The climate of the study area is controlled by the inter tropical convergent zone (ITCZ) which is marked by the rainy and dry season. The major climate elements that influence the climate of the study area and affecting the farming system are temperature and precipitation (rainfall), the annual temperature ranged between  $22-33^{\circ} \text{C}$  from April to May (Bashir *et al.*, 2001). The mean annual rainfall ranged between 615.6-985mm with peak between July- Augusts. The study area is in the Sudan savanna, the vegetation is greatly determined by the nature of the soil. The soil in the study area is aerosol with sandy and loamy sand texture and a high percolation rate. The study was conducted in July to august, 2009 which is the peak of the rainy season

### **Animals and their management**

The animals are managed under the semi intensive system where animals are allowed to graze and supplemented with concentrates. A total number of 250 cattle, 180 sheep and 120 goats were studied. Ticks were collected for the month of July-august, 2009 by visiting each herd in the following areas: College of Education Azare, Federal lowcost, Duhuwarkura, Chinade and Madara using the nested design procedure. Ticks were collected from predilection sites of the animals i.e. legs, head, dewlap, udder, genitalia and trunk. The collection was done with the help of forceps and the ticks collected were stored in container containing 70% ethanol and 5% glycerine for latter identification in the laboratory. Ticks collected were counted and stored. A total of 2500 ticks from cattle were collected, 380 from sheep by and 275 ticks were collected from goat in the study area. Identification of ticks was carried out in the laboratory by placing them in petridishes and picking them using hand lens and microscope by using descriptive keys of Walker *et al.*, 2003. The number of ticks of each species of ruminants were counted and recorded.

### **Results and Discussion**

Table 1 showed the distribution of ticks of bovine species. There are four genera of ticks comprise of eight species. The most prevalent species is the *Amblyomma variegatum* (38%) and the least prevalent were *Boophilus geigy* and *Rhipicephalus senegalensis* (2%). Table 1. The species of ticks reported in cattle in the area are in conformity with those reported by (Fabiya, 2007). Owolabi *et al.* (2015) has reported incidence of *Amblyomma variegatum* in Zaria Kaduna state. The species reported in this work is within the range of species reported by Gumel *et al.*, 2015 who reported that *Amblyomma* spp and *Boophilus* spp are the most prevalent spps affecting cattle in Auyo local of Jigawa state Nigeria. Table 2 showed the distribution of ticks of ovine species. There three genera with five species. The most prevalent species affecting sheep is the *Boophilus decoloratus* (50%). This report is in line with the earlier report of (Abunna *et al.*, 2008) who reported high incidence of *Boophilus decoloratus*, similarly Weaver, 2005 has reported that animals raised under the free-range system are prone or expose to diseases, risk of theft and parasites infestation. Table 3 showed the distribution of ticks affecting caprine species. They are made up three genera with four species. The most prevalent species was the *Rhipicephalus sanguinensis* (70%) and the less

prevalent species was *Amblyomma variegatum* which is also commensurate with reports of (Abunna *et al*, 2008). Similarly early reports of Ofukwu and Akwuobu (2010) reported the most of the species in goats and sheep in Makurdi, north central Nigeria. Some ticks species have preference for the host species (host specific) while some species can affect all species of livestock. Attention should be given to the prevention and control of ticks since they served as vectors to livestock diseases and caused damage to the skin of ruminants there by reduced the foreign exchange of the country. They also cause production losses to these ruminants' species and attention should be focus on the role of blood parasites.

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Table 1:Distribution of ticks affecting bovine species

Species of ticks	Frequency	Percentage
Amblyomma variegatum	950	38
Amblyomma splendidum	300	12
Boophilus annulatus	500	20
Boophilus decolaratus	375	15
Boophilus geigy	125	5
Hyalomma rufipes	100	2
Hyalomma truncatum	150	6
Rhipicephalus senegalensis	50	2
<b>Total</b>	<b>2550</b>	<b>100</b>

Source: Field survey, 2009

Table 2: Distribution of ticks affecting ovine species

Species of ticks	Frequency	Percentage
Amblyomma variegatum	38	10
Boophilus decolaratus	190	50
Boophilus microples	76	20
Rhipicephalus sanguinensis	30	8
Rhipicephalus senegalensis	46	12
<b>Total</b>	<b>380</b>	<b>100</b>

Source: Field survey, 2009

Table 3: Distribution of ticks affecting caprine species

Species of ticks	Frequency	Percentage
Amblyomma variegatum	5	2
Hyalomma variegatum	33	12
Hyalomma truncatum	44	16
Rhicephalus sanguinensis	193	70
<b>Total</b>	<b>275</b>	<b>100</b>

Source : Field survey,2009